

ABSTRACT OF THE DISCLOSURE

[0032] A method and apparatus for reducing crosstalk between sensors in an inline Fabry-Perot (FP) sensor array. The inline FP sensor array comprises a plurality of fiber Bragg gratings arranged periodically along an optical fiber. The sensors are formed between each of the Bragg gratings. A light source provides multiplexed pulses as interrogation pulses for the array. The light pulses are applied to one end of the sensor array and a light detector detects reflected pulses. The detected pulses comprise a composite of reflections from all the Bragg gratings along the fiber. The apparatus processes the detected signals using an inverse scattering algorithm to detect an accurate phase response from each of the Bragg sensors while reducing crosstalk from other Bragg sensors within the array. One form of inverse scattering algorithm is a layer-peeling algorithm.